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June 19, 1997

Mr. Wayne Elson
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128

Re: Q/D Screening Method

Dear Mr. Elson:

We request EPA Region 10's approval to use the "Q/D" method as a screening tool in ambient air quality modeling analysis. The State acknowledges that professional judgement would still be required for determining whether the Q/D method is appropriate for a given modeling analysis, and for evaluating the Q/D results. The use of Q/D would also be limited to the conditions listed in this letter.

The Q/D method was developed by the North Carolina Air Quality Section as a tool to eliminate distant, insignificant emission sources from ambient assessments submitted under the Prevention of Significant Deterioration (PSD) program. North Carolina further limits the use of Q/D to sources located *beyond* the significant impact area of the applicant's PSD source. They originally requested approval from EPA Region IV to use this method in 1985[a].

The Q/D method requires assessment of potential long-term and short-term impacts. In essence, the method may indicate that a distant source may be insignificant when modeling short-term impacts, but may be potentially significant when modeling long-term impacts. Therefore, the Q/D method may require applicants to develop two off-site emission inventories per pollutant: one for "short-term sources" and the other for "long-term sources."

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[a] Eldewins Haynes, North Carolina Air Permit Unit to Lewis Nagler, EPA Region IV; *A Screening Method for PSD*; July 22, 1985. This method was originally approved by EPA Region IV in a September 5, 1985 letter from Bruce Miller to Eldewins Haynes, and once again approved in a December 5, 1994 letter from Douglas Neeley, EPA Region IV, to James G. Roller, North Carolina Air Quality Analysis Unit.

The requirement to use professional judgement in applying Q/D is clear. EPA's Office of Air Quality Planning and Standards (OAQPS) has stated, "Any method for excluding sources from modeling should include flexibility for case-by-case judgments, as well as assurances for accountability."[b] Robert Wilson of EPA Region 10 confirmed the need for professional judgement in using Q/D in a March 26, 1997 e-mail regarding the Badami and Northstar applications.[c]

We firmly believe that judgement must be used with the Q/D method. Basically, we believe the Q/D method is only a *preliminary* screening tool to identify potential emission sources for culling from the ambient assessment. The Department may still review the relative location, sensitive receptors, equipment inventory, stack parameters, ambient monitoring data, and/or probable plume characteristics (or past ambient demonstrations) of flagged sources to determine whether it is reasonable to remove them from the short-term or long-term ambient demonstrations. When in doubt, the Department will take the conservative approach and require the flagged sources to remain in the modeling analysis.

The State of Alaska would further limit the use of Q/D to the following conditions:

1. The Q/D method could only be used to flag emission sources located beyond the significant impact area of the applicant's facility, as shown in Figure 1. Restated, the Q/D method could only be used for sources located within the 50-kilometer annular ring[d] outside of the significant impact area.

2. The "sources" that may be removed from the ambient assessment would be facilities or facility components, such as well-pads, and *not* individual emission units. This approach of treating off-site facilities as a single source when applying the Q/D method was supported in a March 27, 1997 telephone conversation with Mr. James Roller of the North Carolina Air Quality Section. This approach is consistent with our desires, since the culling of individual emission sources would ignore the overall facility impacts.

3. In order to "scrutinize" the results, the applicant must submit the information requested in the

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[b] Memorandum: Edward Lillis, Chief, Noncriteria Pollutant Programs Branch to Gerald Fontenot, Chief, Air Programs Branch, Region IV; *Response to Region VI Position on PSD Modeling Issue*; June 16, 1989.

[c] E-mail: Robert Wilson, EPA Region 10 Meteorologist, to Alan Schuler, ADEC Environmental Engineer; March 26, 1997.

[d] The 50-kilometer "annular ring" is discussed in several documents, including the *New Source Review Workshop Manual* (Draft 1990) and the 1989 Lillis Memorandum.

enclosed Table 1, for each flagged source. Applicants could use a different format for this information. Additional comments regarding the potential impacts from the sources or facilities identified could also be helpful. **The applicant must also list the furthest distance (in kilometers) of significant impact from their proposed source/modification.**

As shown in Table 1, a "distance threshold" would be determined for each pollutant and off-site source by dividing the annual allowable emissions (in tons per year) by 20 ("Q/20" in Table 1). Sources could be flagged for potential culling from the short-term ambient analysis if the "short-term" distance ("d" in Figure 1) *exceeds* the distance threshold for that pollutant. In a similar manner, off-site sources could be flagged for potential culling from a long-term modeling analysis if the "long-term" distance ("D" in Figure 1) exceeds the distance threshold.

Applicants proposing to use the Q/D method should first discuss the appropriateness of this screening tool with the Department. If warranted, the applicant may then assess the off-site sources for potential culling from the ambient assessment. We will then review the information requested in Table 1, along with the information regarding the applicant's significant impact area. We may also request the stack parameters in Table 2 to allow us to verify the potential impacts. Once we have reviewed the submitted information, we will decide whether the culling of the flagged off-site sources is warranted.

Thank you for considering our request. Please contact me at (907) 465-5112 if you have any questions.

Sincerely,

Alan E. Schuler, P.E.
Environmental Engineer

AES/pal (h:\air\aschuler\modelgdn\qd_stwd.ltr)
Enclosure

cc: Myron Chaitoff, ADEC/AQM, Anchorage
Jeffrey Anderson, ADEC/AQM, Juneau
Rob Wilson, EPA Region 10, Seattle
File 15.03
Future Q/D Applicants

Figure 1--Q/D Distances

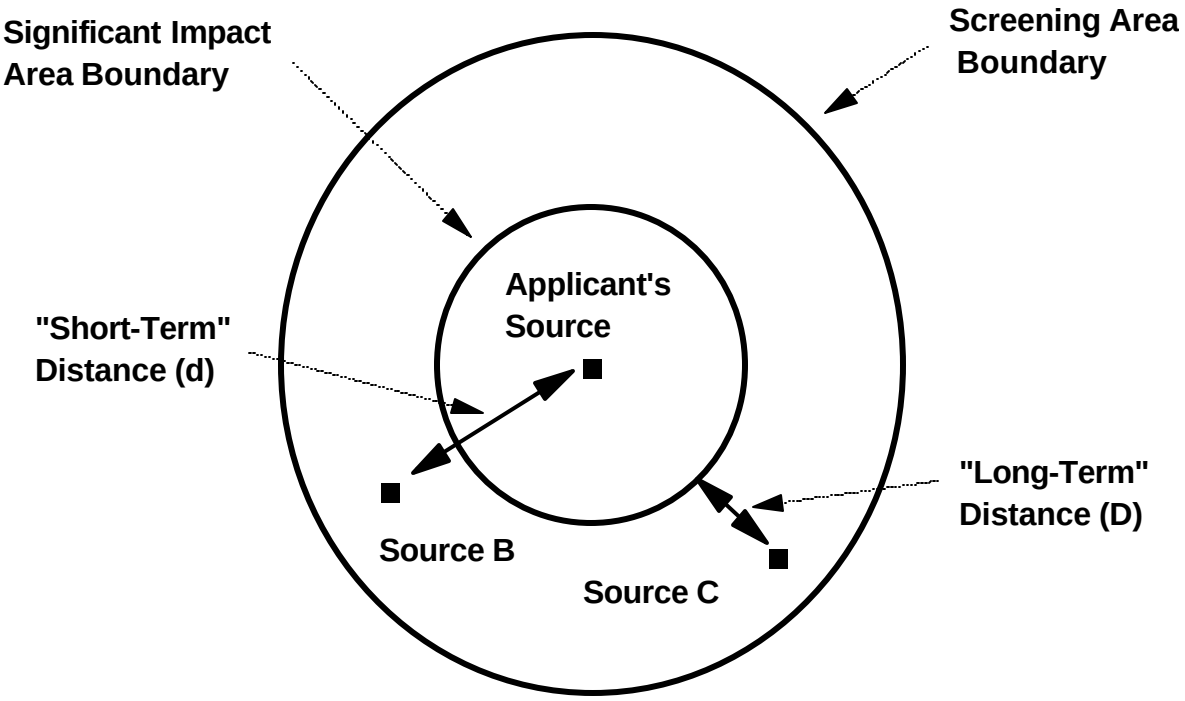

Table 1--Desired Information for Expressing Q/D Results

Source	Allowable Emissions "Q" (tpy)	Pollutant	"Q"/20: Distance Threshold [a] (km)	Actual Short-term Distance [b] (km)	Actual Long-term Distance [c] (km)

[a] The threshold distance is calculated by dividing the allowable emissions (in tons per year) by 20.

[b] Distance between applicant's source and listed source (in kilometers). *This is distance (d) in Figure 1.*

[c] Distance between significant impact area boundary and listed source (in kilometers). *This is distance (D) in Figure 1.*

Table 2--Equipment Inventory and Stack Parameters of "Culled" Sources

Source	Equipment Inventory	Stack		Exit Temperature (K)	Exit Velocity (m/s)
		Height (m)	Diameter (m)		